APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,530	06/24/2005	Koen A. J. de Graaff	082671-0199	1436

			EXAMINER
22428	7590	05/08/2006	BARNES, CRYSTAL J

FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		10/523,530	DE GRAAFF, KOEN A. J.
		Examiner	Art Unit	
		Crystal J. Barnes	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 February 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>6-14</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>6-14</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>04 February 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>4 Feb. '05</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   The following is an initial Office Action upon examination of the above-

identified application on the merits. Claims 6-14 are pending in this application.

Priority

2.   Receipt is acknowledged of papers submitted under 35 U.S.C. 365(b), which

papers have been placed of record in the file.

Information Disclosure Statement

3.   The examiner has considered the information disclosure statement (IDS)

submitted on 4 February 2005.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition
> of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to
> the conditions and requirements of this title.

Claims 6-14 are rejected under 35 U.S.C. 101 because the claimed invention

is directed to non-statutory subject matter. The language of the claim raises a

question as to whether the claim is directed merely to an abstract idea that is not

tied to a technological art, environment or machine which would result in a practical

application producing a concrete, useful, and tangible result to form the basis of

statutory subject matter under 35 USC 101. The "method of detecting a

malfunction" is non-statutory as not being tangibly embodied such as incapable of

being touched or perceived. A person could perform these steps mentally or by

using pencil and paper.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102

that form the basis for the rejections under this section made in this Office

action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   Claims 6 and 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated

by USPN 5,254,921 to Matsubara.

As per claim 6, the Matsubara reference discloses a method of detecting a

malfunction during a displacement of an element by a drive system, said method

comprising the steps of: determining a difference (see column 2 lines 30-34,

"position deviation") between a predetermined value (see column 2 lines 35-39,

"command movement amount") and an actual value (see column 2 lines 30-34,

"feedback pulse") at regular intervals (see column 2 line 38, "periodically") during

the displacement of the element ("servomotor 4"); determining a derivative (see

column 2 lines 42-48, "speed deviation") of the difference ("position deviation") at

regular intervals ("periodically"); wherein the difference ("position deviation") and

the derivative ("speed deviation") both fluctuate around an equilibrium value

("predetermined period"); sampling the values (see column 4 lines 3-6, "repeatedly

executes") of the difference ("estimated position deviation") and the derivative

("estimated speed command") on one side of the equilibrium value ("predetermined

period"); multiplying the sampled values (see column 4 lines 17-24, "estimated

movement amount") of the difference ("estimated position deviation") and the

derivative ("estimated speed command"); comparing the multiplied values (see

column 4 lines 52, "estimated position deviation") to a reference value

("predetermined value"); and detecting the malfunction (see column 5 lines 5-13,

"abnormal condition") if the multiplied values ("absolute value") are greater than

("larger than") the reference value ("predetermined value").

As per claim 9, the Matsubara reference discloses the predetermined value represents a desired position (see column 2 lines 35-39, "command movement amount") of the displaceable element, and wherein the actual value ("feedback pulse")represents an actual position (see column 2 lines 54-55, "position feedback") of the element.

As per claim 10, the Matsubara reference discloses a component placement device configured to detect a malfunction during a displacement of an element, the component placement device comprising: a processor (see column 2 lines 20-21, "microcomputer") configured to: cause a displacement ("movement") of the element (see column 4 lines 60-62, "robot arm") along a path ("axis") that defines a series predetermined positions ("position"); determine an actual position (see column 2 lines 30-34, "feedback pulse") of the element corresponding to each of the predetermined positions ("position") during the displacement of the element, determine a difference (see column 2 lines 30-34, "position deviation") between each actual position (see column 2 lines 30-34, "feedback pulse") of the element and the corresponding predetermined position (see column 2 lines 35-39, "command movement amount") of the element, determine a derivative (see column 2 lines 42-48, "speed deviation") of the difference ("position deviation"), wherein the

difference ("position deviation") and the derivative ("speed deviation") both

fluctuate around an equilibrium value ("predetermined period"), sample the values

(see column 4 lines 3-6, "repeatedly executes") of the difference ("estimated

position deviation") and the derivative ("estimated speed command") on one side of

the equilibrium value ("predetermined period"); multiply the sampled values (see

column 4 lines 17-24, "estimated movement amount") of the difference ("estimated

position deviation") and the derivative ("estimated speed command"); compare the

multiplied values (see column 4 lines 52, "estimated position deviation") to a

reference value ("predetermined value"); and detect the malfunction (see column 5

lines 5-13, "abnormal condition") if the multiplied values ("absolute value") are

greater than ("larger than") the reference value ("predetermined value").

As per claim 11, the Matsubara reference discloses the processor

("microcomputer") comprises a control circuit (see column 2 lines 22-23, "digital

servo circuit section 1"), and wherein the control circuit ("digital servo circuit

section 1") comprises: a drive system (see column 2 lines 27-30, "servomotor 4")

configured to displace ("move") the element along the path that defines the series

predetermined positions ("command movement amount").

As per claim 12, the Matsubara reference discloses the control circuit ("digital servo circuit section 1") further comprises: a controller ("digital servo circuit section 1") configured to control the drive system ("servomotor 4").

As per claim 13, the Matsubara reference discloses the control circuit ("digital servo circuit section 1") further comprises: an input (see column 2 lines 30-39, "arithmetic operation section 11") configured to determine the actual position ("feedback pulse") of the element corresponding to each of the predetermined positions ("command movement amount") during the displacement of the element.

As per claim 14, the Matsubara reference discloses the control circuit ("digital servo circuit section 1") further comprises: a difference determinator ("arithmetic operation section 11") configured to determine the difference (see column 2 line 32, "position deviation") between each actual position ("feedback pulse") of the element and the corresponding predetermined position ("command movement amount") of the element.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

The following references are cited to further show the state of the art with

respect to digital positioning to detect collisions/interference in general:

USPN 7,029,175 B2 to Karaus et al.

USPN 6,429,617 B1 to Sano et al.

USPN 6,185,480 B1 to Takahashi et al.

USPN 5,719,473 to Kato et al.

USPN 5,570,770 to Baaten et al.

USPN 5,493,192 to Nihei et al.

USPN 5,204,598 to Torii et al.

USPN 4,580,085 to Eto et al.

USPN 4,272,711 to Fukuyama et al.

US Pub. No. 2005/0104549 A1 to Nishimura et al.

US Pub. No. 2001/0051841 A1 to Kawai

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 571.272.3679. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 571.272.3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Crystal J Barnes

CJB

1-May-06